Insider versus outsider executive succession: The relationship to hospital efficiency

Eric W. Ford
Kevin B. Lowe
Geoffrey B. Silvera
Dmytro Babik
Timothy R. Huerta

Background: The relationship between Chief Executive Officer (CEO) succession and hospitals’ competitive performance is an area of interest for health services researchers. Of particular interest is the impact on overall strategic direction and health system performance that results from selecting a CEO from inside the firm as opposed to seeking outside leadership. Empirical work-to-date has yielded mixed results. Much of this variability has been attributed to design flaws; however, in the absence of a clear message from the evidence, the preference for hiring “outsiders” continues to grow.

Purpose: This paper investigates on the extent to which insider CEO succession versus outsider succession impacts hospitals’ competitive advantage vis-à-vis a sample of organizations that compete in the same sector.

Methods: A hospital matching protocol based on propensity scores is used to control for endogeneity and makes comparisons of productivity across organizations through the use of stochastic frontier estimation.

Findings: Succession negatively impacts hospitals’ productivity, and firms with outsider CEO succession events closed the gap toward the competitive advantage frontier faster than comparable firms with insider successions.

Practice Implications: More research needs to be done on succession planning and its impact on CEO turnover.

Key words: efficiency, frontier analysis, leadership, succession

Health systems are experiencing Chief Executive Officer (CEO) turnover with increasing frequency (American College of Healthcare Executives, 2015). From 1990 to 2014, the percentage of hospitals replacing their CEOs had gone from 13% to 18%. Deborah J. Bowen, FACHE, CAE, ACHE’s president and CEO, noted that “the elevated turnover among hospital CEOs seems to be a feature of the current health care environment” (American College of Healthcare Executives, 2015). Consolidation among hospitals, increasing demands on CEOs to manage increasingly complex organizations, and the retirement of leaders from the baby boom generation are each contributing to higher turnover in hospitals’ senior leadership.

As organizations search for leaders who can advance the organization into a position of sustainable competitive advantage and, in turn, achieve superior performance outcomes, they use one of two strategies (Cao, Maruping, & Takeuchi,
2006). They may choose to manage the CEO transition through internal succession. Insider succession’s advantages include the retention of context-specific tacit and explicit knowledge and have been linked to the belief that such a choice serves to continue successful dynamics (Messersmith, Lee, Guthrie, & Ji, 2014). It is not uncommon for the incumbent to have been groomed to take the job for continuity’s sake. In contrast, outsiders offer hospitals an opportunity to bring new thinking and different experiential knowledge to a key strategic decision-making position (Ballinger & Marcel, 2010; Hughes, Hughes, Mellahi, & Guermat, 2010; Jain, 2013; Karaevli & Zajac, 2013). In particular, outsiders are often lauded for bringing “fresh eyes” to the hospital’s structure, process, and outcomes with the potential to make changes that insiders might not consider (Chen & Hambrick, 2012). Empirical research on insider versus outsider succession decisions have thus far found either no differences in firm performance (Karaevli, 2007) or that “insiders” tend to have better performance outcomes compared to “outside” leaders (Bower, 2007; Collins, 2001). Despite such findings, hospitals have increasingly sought outside in selecting the hospital’s next CEOs (Jung, 2013).

The purpose of this study is to explore the implications of selecting an “insider” versus an “outsider” in executive succession events on hospitals’ competitive performance. Although prior studies have explored this dynamic across a diverse array of economic sectors, none have been pursued in the health care domain despite the availability of highly robust longitudinal data collection systems absent in these other fields. Furthermore, the robust data available on the U.S. health care system allows for an in-depth analysis of the organizational transformation. Regardless of intent, prior research on the CEO succession–competitive performance relationship has produced varied and conflicting findings that frustrate managers, boards of directors, and leading management scholars alike (Hutzschenreuter, Kleindienst, & Greger, 2012; Kesner & Sebora, 1994). Among this latter group, there is a growing concern that research findings’ inconsistencies may arise from incongruencies between the theoretical framework, the experimental design, and the analytic methods employed. Herein, we use an RBV of the firm as our theoretical framework, using a quasi-experimental design via PSM, coupled with SFA. These three approaches, when deployed together, offer a theoretically and conceptually well-aligned whole through which the CEO Succession–Hospital Performance paradigm can be explored. We discuss each, in turn.

RBV is a widely accepted organizational theory framework asserting that firms secure and transform inputs into outputs to gain and sustain a competitive advantage relative to their peers (Barney, 1991; Wernerfelt, 1984). The “transformation” criterion has become a focus of management researchers because it is the firm’s capabilities in this domain upon which executives can exert the greatest influence in the near term. (Augier & Teece, 2009; Helfat, 2011; Teece, Pisano, & Shuen, 1997). In particular, executives are often directly responsible for managing and refocusing efforts related to strategic renewal—the reassessment and realignment of the mission and vision of the organization. These efforts generally require a reconfiguration of the capabilities used in the input–output transformation (Agarwal & Helfat, 2009).

The linkage between executives who provide strategic direction in altering the organization’s capabilities to achieve and sustain a competitive advantage in terms of productivity—the transformation of resources to products and services—is a critical theoretical issue with substantive methodological implications. First, executives are expected to provide strategic direction and ensure that the organization’s capabilities are aligned to achieve requisite changes in structure and process under the expectation that
such changes will improve productivity. Thus, changes in productivity should be detectable in cases of executive succession in both the short term and long term within the context of a broader competitive environment where such an executive succession does not occur. Second, given a competitive environment, analysis should not be against “others” but “peers.” RBV, as conceptualized in the literature, requires that we focus comparisons against our highest performing peers, those that face similar pressures, have similar economies of scale, and have similar transformational limitations. Thus, our design should identify peers, and our analysis should compare productivity in terms relative to the highest performing among them. Reviews of the literature have found studies lacking when measured against these criteria (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Given that executive succession events cannot be randomized in real-world contexts, the most common methodological design has been the use of observational studies where the comparators are based in sector level data. In this case, these studies define the comparators as the “other” as opposed to “peers.” However, advances in the identification of similar others—in other words, peers—have emerged in statistics. In particular, PSM seeks to identify those observations that are closest to an observed set across a series of domains to identify those that look most like those in the facilities that had a leadership change. When successful, the matched control set mirrors the intervention arm across these domains, making the identification of peers manifest based on the domains selected and reducing variability introduced by observations that are more other than peer.

In the study of executive succession, the need for an analytic approach that focuses on the influence of management on the transformation process is paramount. One class of approaches well suited to this problem has been the various “frontier” analytic models—which explore productivity across organizations within a sector (Huerta, Ford, Peterson, & Brigham, 2008; Thompson, Huerta, & Ford, 2012). Frontier models such as SFA can identify organizations that are superior in the transformation of inputs to outputs at which point they are deemed most productive. Researchers have used the difference between an organization’s transformational efficiency relative to the productivity frontier to measure the effect of management (Mutter, Rosko, Greene, & Wilson, 2011). This comparison hews more closely to the theoretic concept of competitive advantage than other analytic approaches, including ordinary least squares regression, which is the dominant analytic approach in this domain. By extension, PSM and SFA allow assessments against peers in terms of best-in-class performance in ways that more closely align to the extant literature in executive succession.

**Methods**

The theory–method alignment of succession research requires a different statistical approach than is often used in the literature. In supplemental materials available from the authors, the use of PSM to facilitate a quasiexperimental design for addressing the issues related to sample selection is detailed. The conceptual model displays the approach taken to analyzing the CEO succession event. The null hypothesis is that efficiency and productivity are unchanged over time—there is no management effect. Alternatively, CEO changes will have differential effects on hospital performance in the short and long terms, although those impacts may not be the same. Figure 1 displays the conceptual model for the study and the analytic strategy. The details of the SFA framework that more closely aligns to theory than the standard regression approach that starts by measuring “average” performance is also available from the authors. These two methods are used to create the sample and dependent variable (i.e., efficiency measure), respectively.

**Sample Selection**

The data used in this study come from the American Hospital Association (AHA) Annual Survey for fiscal years 2003 through 2007, inclusive. A total of 5,933 hospitals, the full population in the AHA survey, were studied. In the
first step, we identified executive succession events. CEO lists were compared between 2004 and 2005 to identify changes. On the basis of these data, 490 hospitals underwent a CEO succession event (8.26%). These hospitals were then further identified as having either an outsider or insider successor. Organizations that selected another C-level officer within the organization to take the role of CEO (82 organizations) were categorized as “insider” successors. The remaining changes were termed “outsider” successors (408 firms).

PSM was used to identify hospitals with similar pre-leadership change characteristics to those that experienced a CEO succession event in FY2005. PSM normalizes variation between control and intervention hospitals, in this case allowing the researcher to attribute relative changes in hospitals’ competitive performances to the intervention. The variables used to identify similar hospitals are well documented in numerous studies (Rosko & Mutter, 2011) and are focused primarily on service delivery activities adjusted for patient acuity (e.g., adjusted patient days) as well as structural measures. Using PSM, we identified three control hospitals for each facility experiencing a leadership change. This 3-to-1 PSM process identified 1,470 hospitals from which 240 duplicates were removed. The resultant comparator group was composed of 1,230 closely matched hospitals. When combined with the 490 hospitals with a succession event, the selection process resulted in a first-step sample size of 1,640 hospitals included for the subsequent analyses.

**Panel Analysis**

Given the availability of sufficient cross-sectional and longitudinal data, the researchers selected panel analysis using a fixed-effects model to control for all time-invariant differences between the subjects. Using Cost Efficiency derived from an SFA of organizational performance as the dependent variable, a 5-year panel analysis was performed (FY2003–2007). The CEO succession events studied all took place in the third year of the analysis (i.e., FY2005) to provide 2 years pre and 2 years post in the analysis. Two dummy variables for Insider and Outsider succession were coded in 2003 and 2004 as zero (0) and the remaining years equal to one (1), depending on condition. Time was included to assess the temporal trends related to hospitals’ performance levels and to provide for annualized changes in efficiency over the same study period (see Table 5). An interaction term was created between Time and the two variables of interest to localize the relative rates of change for Insiders’ and Outsiders’ impacts on Cost Efficiency.

**Results**

The CEO succession sample and control group means and standard deviations are presented in Table 1, along with the variable correlations used in the PSM. As explained earlier, the PSM identified high-quality matches. Robustness testing of the PSM found that none of the individual covariates was a significant discriminator among hospitals (see Table 2) and a regression model showed no explanatory power for predicting CEO succession events between the matched samples (Pseudo $R^2 = 0.0021; p > .673$). The result is an elevated ability to make causal inferences on the effect of CEO succession on hospital performance.

Table 3 presents the means, standard deviations, and correlations for the variables used in the SFA prior to being transformed into their natural logs as they are inserted into the analysis. Table 4 shows the coefficients and overall model statistics. The relationship between the variable of interest and the hospital’s relative efficiency are described by the coefficients. Positive coefficients indicate that the variable causes a hospital to reside farther from the frontier than more successful organizations. For example, the interpretation of the Natural log of normalized price of capital variable ($\beta = 0.1231$) is: “As the price of capital increases, so does the hospital’s distance from the optimal efficiency frontier.” Alternatively it could be stated: “Increased capital costs are associated with higher levels of inefficiency.” Overall, the trans-log measures used are consistent with prior studies from the same business sector (cf. Mutter et al., 2011; Rosko & Mutter, 2008). In particular, economies of scale are evidenced by the negative coefficient on the Natural log of adjusted admissions and a positive coefficient on the Natural log of patient days. The latter variable’s interpretation being that needing more days in the hospital to provide comparable care is a form of inefficiency. Robustness testing determined that SFA provided a superior model for evaluation over ordinary least squares regressions in this case.

To examine the effect of CEO succession on hospital’s competitive performance, the longitudinal regression model for hospital competitive performance was developed. The dependent variable in the analysis was the change in hospitals’ year-to-year efficiency compared to the market calculated using the SFA method, whereas a Hausman test indicated that the fixed effects model was in order ($p = .0834$). Both models’ coefficients and significance levels are identical except for the intercept, supporting the supposition that the longitudinal regression model is statistically robust and endogeneity is not an issue. The hospitals showed a significant positive secular trend in productivity, as indicated by the Time variable (see Table 5), indicating that collectively they were improving the efficiency frontier outward over the time period—they were able to generate more outputs given comparable or lower input levels.

In terms of the succession variable, intercept coefficients for both Insiders and Outsiders are positive and significant (see Table 5). The interpretation of these coefficients is that both CEO succession interventions increased the hospitals’ distance to the competitive performance frontier.
compared to the control group that had no leadership change. This can be translated to mean that the leadership succession event, whether it involves an Insider or an Outsider, is significantly related to a one-period decline or shock in hospital performance relative to hospitals that had no change. More plainly put, hospitals that changed CEOs had a one-time decline in relative efficiency and, in turn, were less competitive in the short term.

Competitive performance in years subsequent to the CEO succession can be assessed in the interaction variable for each of the succession events. The negative sign on the slope variables indicates that hospitals who changed CEO were closing the efficiency gap in the years that followed. Both Insiders and Outsiders were trending the desired direction toward the frontier of most efficient hospitals. However, only the Outsiders were doing so at a statistically significant level. In other words, hospitals that experienced an Outsider CEO succession event were able to close the gap to the competitive advantage frontier, whereas Insiders experience no such rebound, leaving them in a worse position than if they had never had a CEO succession event.

### Discussion

The study’s findings add to our understanding of how insider versus outsider executive succession impacts hospitals’ productivity. The data support the claim that any type of leadership change will result in short-term, adverse impacts in a hospital’s operational efficiency as the organization transitions to new leadership. Therefore, boards and other
stakeholders should plan for short-term losses when making the transition decision. Although logic suggests that transition costs may be greater with external successors, we found no such evidence in the data. Similarly, although some argue that developing internal talent should increase organizational resilience in the face of change, the organization still experiences a productivity loss associated with the aforementioned “shock” of transition. However, scholars have noted that, during the period studied, many health systems had little in the way of either succession planning or leadership development (Kim & Thompson, 2012). The evaluation of the qualitative differences between planned and serendipitous succession was outside the scope of the paper and the available data. Hospitals and health systems may find that robust succession planning can effectively mitigate the shock factor associated with new internal leaders.

Understanding the roles CEOs play in improving hospital level performance continues to challenge researchers due to

### Table 3

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sample mean</th>
<th>Sample SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total facility expenses (excluding bad debt) (million $)</td>
<td>119.00</td>
<td>173.00</td>
</tr>
<tr>
<td>Depreciation expense (million $)</td>
<td>5.32</td>
<td>9.64 0.81</td>
</tr>
<tr>
<td>Payroll expense (million $)</td>
<td>49.30</td>
<td>72.20 0.99</td>
</tr>
<tr>
<td>Price of capital</td>
<td>26,208.10</td>
<td>34,332.13</td>
</tr>
<tr>
<td>Price of labor</td>
<td>45,811.28</td>
<td>14,486.14</td>
</tr>
<tr>
<td>Log of normalized total expenses</td>
<td>7.09</td>
<td>1.22 0.75</td>
</tr>
<tr>
<td>Log of normalized price of capital</td>
<td>−0.89</td>
<td>0.97 0.20</td>
</tr>
</tbody>
</table>

### Table 4

<table>
<thead>
<tr>
<th>#</th>
<th>Variables (VAR ABBR.)a</th>
<th>Coefficient</th>
<th>SE</th>
<th>p  z</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.</td>
<td>Intercept</td>
<td>2.706</td>
<td>0.581</td>
<td>.000</td>
</tr>
<tr>
<td>1.</td>
<td>Natural log of normalized price of capital (LNNPK)</td>
<td>0.123</td>
<td>0.042</td>
<td>.004</td>
</tr>
<tr>
<td>2.</td>
<td>Natural log of adjusted admissions (LNCMAJADM)</td>
<td>−0.929</td>
<td>0.090</td>
<td>.000</td>
</tr>
<tr>
<td>3.</td>
<td>Natural log of total outpatient visits (LNVTOT)</td>
<td>−0.070</td>
<td>0.058</td>
<td>.230</td>
</tr>
<tr>
<td>4.</td>
<td>Natural log of adjusted patient days (LNADJPD)</td>
<td>0.492</td>
<td>0.093</td>
<td>.000</td>
</tr>
<tr>
<td>5.</td>
<td>Ratio of outpatient surgeries to total outpatient visits (OPDSURG)</td>
<td>0.371</td>
<td>0.074</td>
<td>.000</td>
</tr>
<tr>
<td>6.</td>
<td>Technology Intensive Facility (TIF)</td>
<td>0.006</td>
<td>0.009</td>
<td>.480</td>
</tr>
<tr>
<td>7.</td>
<td>Council of Teaching Hospitals (COTEACH)</td>
<td>0.348</td>
<td>0.028</td>
<td>.000</td>
</tr>
<tr>
<td>8.</td>
<td>Teaching hospital other than COTEACH (OTHTEACH)</td>
<td>0.054</td>
<td>0.007</td>
<td>.000</td>
</tr>
</tbody>
</table>

Squares
2 and 2 | LNCMAJADM * LNCMAJADM | 0.066 | 0.008 | .000 |
3 and 3 | LNVTOT * LNVTOT | 0.052 | 0.004 | .000 |
4 and 4 | LNADJPD * LNADJPD | −0.005 | 0.008 | .502 |

Cross-products
2 and 1 | LNCMAJADM * LNNPK | 0.004 | 0.005 | .415 |
3 and 1 | LNVTOT * LNNPK | −0.016 | 0.004 | .000 |
4 and 1 | LNADJPD * LNNPK | 0.009 | 0.006 | .123 |
2 and 3 | LNCMAJADM * LNVTOT | −0.034 | 0.008 | .000 |
2 and 4 | LNCMAJADM * LNADJPD | 0.059 | 0.014 | .000 |
3 and 4 | LNVTOT * LNADJPD | −0.054 | 0.007 | .000 |
y | 0.726 | 0.010 |

Log-likelihood | −186.618  | .000 |
Wald chi-square | 15,543.30 | .000 |
Number of firms | 1,640 | 34 |
Number of iterations | 12 | 12 |

aThe variables created by squaring and making interaction terms are all capitalized. The first four single variables are the items squared and interacted.
both its theoretic and methodological complexity. However, how leaders and leadership changes influence the organization’s capabilities to more efficiently transform inputs to outputs is still unclear. The transformation criterion has become a focus of management scholars because it is firm capabilities that executives can influence in the near-term (Augier & Teece, 2009; Helfat, 2011; Pavlou & El Sawy, 2011; Teece et al., 1997). However, based on the use of the RBV conceptual model, accompanied with a quasi-experimental design and a frontier analytic frame, we may have identified the framework necessary to achieve theoretical and methodological congruence and answer some of the more vexing problems in executive succession research. Specifically, if outsiders offered no advantage, as prior research would indicate, it would cease as a strategic response to succession. That it continues to grow in popularity as a choice across hospitals suggests that our models have been insufficient to the task.

This robust approach suggests that hospitals have had it right all along—that the outsider is the better option. In particular, new executives are often charged with reconfiguring the firm’s input–output transformation process (Pavlou & El Sawy, 2011), resulting in organizational changes and breaks in the momentum that impacts sustained competitive advantage (Welsh & Dehler, 1988). Just as outsiders are not beholden to political factions prior to taking the helm, they are also not bound by the inertia of the firm. The absence of institutional norming enables outsider CEOs to set new strategic directives that need not be related to the firm’s previous RBV strategies. These advantages may be the factors that allow outsiders to outpace their insider rivals.

### Practice Implications

Hospital and health system boards should promote internal succession planning given the negative impact on hospital efficiency hiring external talent involves. In addition, boards should factor in the negative impact on hospital efficiency that any change in leadership will incur. Specifically, the drop in efficiency that immediately follows a succession event and the 2- to 5-year horizon required to return to baseline needs to be integrated into expectations. Lastly, boards may wish to delay termination actions on current managers given the difficulty in turning the battleship that improving hospital management represents.

For manager, benchmarking efficiency against similar hospitals is difficult but should be a component of any goals program. Furthermore, new managers should negotiate explicit time frames that tend to be longer than 1- or 2-year horizons as those are unlikely to be achieved. Similarly, as new CEOs come onboard, they should lead in a fashion consistent with the realities of change management time horizons.

### Limitations, Future Research, and Conclusions

The data used in the study at hand have three distinct limitations. First, although the efficiency models used were consistent with the current state-of-the-art in SFA, they were not based on actual revenue, labor, and capital measures typically used in economics. Rather, they were grounded in the long history of analytics of hospital performance in the

### Table 5

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fixed effects regression</th>
<th></th>
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<th></th>
<th>Random effects regression</th>
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<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>SE</td>
<td>p &gt; t</td>
<td>Coefficient</td>
<td>SE</td>
<td>p &gt; t</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>4.836</td>
<td>0.000</td>
<td>.000</td>
<td>4.846</td>
<td>0.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Outsider’s intercept</td>
<td>0.012</td>
<td>0.002</td>
<td>.000</td>
<td>0.012</td>
<td>0.002</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Insider’s intercept</td>
<td>0.013</td>
<td>0.004</td>
<td>.002</td>
<td>0.013</td>
<td>0.004</td>
<td>.002</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>0.030</td>
<td>0.000</td>
<td>.000</td>
<td>0.030</td>
<td>0.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Outsider’s slope</td>
<td>−0.003</td>
<td>0.001</td>
<td>.000</td>
<td>−0.003</td>
<td>0.001</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Insider’s slope</td>
<td>−0.002</td>
<td>0.002</td>
<td>.277</td>
<td>−0.002</td>
<td>0.002</td>
<td>.277</td>
<td></td>
</tr>
<tr>
<td>sigma_u</td>
<td>1.487</td>
<td>1.485</td>
<td>0.999</td>
<td>0.999</td>
<td>0.999</td>
<td>0.999</td>
<td></td>
</tr>
<tr>
<td>sigma_e</td>
<td>0.022</td>
<td>0.022</td>
<td>0.999</td>
<td>0.999</td>
<td>0.999</td>
<td>0.999</td>
<td></td>
</tr>
<tr>
<td>rho</td>
<td>0.399</td>
<td>0.399</td>
<td>0.399</td>
<td>0.399</td>
<td>0.399</td>
<td>0.399</td>
<td></td>
</tr>
<tr>
<td>Number of groups</td>
<td>1,640</td>
<td>1,640</td>
<td>3905.3</td>
<td>3905.3</td>
<td>3905.3</td>
<td>3905.3</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>19514.22</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Wald chi2(5)</td>
<td></td>
<td>19514.22</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Use the random effects model (Hausman test rejects the null at p = .0834).
hospital sector. Since 2007, one notable concern about productivity in the hospital context has been a growing demand to include care outcomes and quality measures as a component of the outcomes of a hospital. However, during the period studied, such measures were not universally and publicly available. Finally, we note a limitation associated with the age of the data. The limiting factor was not the availability of hospital performance data but the limited data available on C-suite leadership positions. Finally, leadership succession research often seeks to determine succession’s impact on firms’ performance relative to competitors (cf. Karaevli, 2007). A more practical ideal for this research stream would inform hospital decision-makers on when a component of the outcomes of a hospital. However, during demand to include care outcomes and quality measures as productivity in the hospital context has been a growing trend versus long-term impact of managers: Evidence from the football industry. British Journal of Management, 21(2), 571–589.


Rosko, M. D., & Mutter, R. L. (2011). What have we learned from the application of stochastic frontier analysis to U.S. hospitals? Medical Care Research & Review, 68(1 Suppl), 75S–100S.


